AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application:

1. (Currently Amended) An isolated mutant human serum albumin ~~substantially~~ having at least 90% sequence identity to native human serum albumin and comprising the amino acid sequence of SEQ ID NO:1, [[:]]

~~DAHKSEVAHRFKDLGEENFKALVLIAFAQX$_3$LQQCPFEDHV~~
~~KLVNEVTEFAKTCVADESAENCDKSLX$_4$TLFGDKLCTVATL~~
~~RETYGEMADCCAKQEPERX$_2$X$_3$CFX$_6$QHKDDNPNLPRLVRPE~~
~~VDVMCTAFHDNEETFLKKYLYEIARRX$_8$PYFYAPELLFFAKR~~
~~YKAAFTECCQAADKAACLLPKLDELRDEGKASSAKQRLKC~~
~~ASLQKFGERAFKAWAVARLSQRFPKAEFAEVSKLVTDLTK~~
~~VX$_{10}$TECCX$_3$X$_4$X$_5$LLECADDRADLAKYICENQDSISSKLKEC~~
~~CEKPLLEKSX$_{11}$CIAEVENDEMPADLPSLAADFVESKDVCKN~~
~~YAEAKDVFLGMFLYEYARRHPDYSVVLLLRLAKTYETTLE~~
~~KCCAAADPHECYAKVFDEFKPLVEEPQNLIKQNCELFEQLG~~
~~EYKFQNALLVRYTKKVPQVSTPTLVEVSRNLGKVGSKCCK~~
~~HPEAKRMPCAEDYLSVVLNQLCVLHEKTPVSDRVTKCCTES~~
~~LVNRRPCFSALEVDETYVPKEFNAETFTFHADICTLSEKERQ~~
~~IKKQTALVELVKHKPKATKEQLKAVMDDFAAFVEKCCKAD~~
~~DKETCFAEEGKKLVAASQAALGL (SEQ ID NO.:1)~~

wherein at least X_1 is other than H; X_2 is other than N, X_3 is other than H, X_4 is other than D; X_5 is other than Y; X_6 is other than L; X_7 is other than G, X_8 is other than E, X_9 is other than H, X_{10} is other than H, or X_{11} is other than H, such that said mutant displays an altered metal binding affinity or ~~one or more~~ an altered physiological characteristics with respect to native human serum albumin.

2. (Currently Amended) The mutant according to claim 1 wherein said ~~one or~~ altered metal binding affinity or altered ~~more~~ physiological characteristics ~~are~~ causes a change in cell adhesion to a substrate, percentage viability of cell, or cell growth of cells in culture.

3. (Currently Amended) An isolated mutant mammalian serum albumin ~~substantially~~ having at least 90% sequence identity to the native mammalian serum albumin from which the mutant is derived and comprising one of the sequences ~~as shown in Table 1~~ of SEQ ID NOs:2-10, wherein at least one of the residues at positions 54, 91, 123, 124, 127, 170, 266, 271, 272, 273, and 312 of SEQ ID NO:2, positions 46, 73, 115, 116, 119, 128, 258, 263, 264, 265, and 304 of SEQ ID NO:3, positions 54, 91, 123, 124, 127, 170, 266, 271, 272, 273, and 312 of SEQ ID NO:4, positions 54, 91, 123, 124, 127, 170, 266, 271, 272, 273, and 312 of SEQ ID NO:5, positions 54, 91, 123, 124, 127, 169, 265, 270, 271, 272, and 311 of SEQ ID NO:6, positions 54, 91, 123, 124, 127, 169, 265, 270, 271, 272, and 311 of SEQ ID NO:7, positions 52, 89, 121, 122, 125, 167, 263, 268, 269, 270, and 309 of SEQ ID NO:8, positions 54, 91, 123, 124, 127, 170, 266, 271, 272, 273, and 312 of SEQ ID NO:9, positions 54, 91, 123, 124, 127, 170, 266, 271, 272, 273, and 312 of SEQ ID NO:10 ~~denoted by X_n~~ is mutated such that said mutant serum albumin displays an altered metal binding affinity or ~~one or more~~ an altered physiological characteristics with respect to the native mammalian serum albumin ~~sequence~~ from which the mutant is derived.

4. (Canceled)

5. (Canceled)

6. (Previously presented) The mutant serum albumin according to claims 1 or 3 wherein the altered metal binding affinity is a decrease or increase in metal binding affinity.

7. (Previously Presented) The mutant according to claims 1 or 3 wherein the metal is zinc.

8. (Currently Amended The mutant according to claims 1 or 3 ~~comprising at least one of the following mutations:~~ wherein

X_1 [[=>] is any one of A, F, G, I, K, L, N, P, Q, R, S, T, V, W, Y, C, D, E;

X_2 [[=>] is any one of A, F, G, I, K, L, P, Q, R, S, T, V, W, Y, C, D E, H;

X_3 [[=>] is any one of A, F, G, I, K, L, N, P, Q, R, S, T, V, W, Y, C, D, E;

X_4 [[=>] is any one of A, F, G, I, K, L, N, P, Q, R, S, T, V, W, Y, C, E, H;

X_5 [[=>] is any one of C, D, E, H;

X_6 [[=>] is any one of C, D, E, H;

X_7 [[=>] is any one of C, D, E, H;

X_8 [[=>] is any one of A, C, F, G, H, I, K, L, N, P, Q, R, S, T, V, W, Y;

X_9 [[=>] is any one of A, D, E, F, G, I, K, L, N, P, Q, R, S, T, V, W, Y;

X_{10} [[=>] is any one of A, D, E, F, G, I, K, L, N, P, Q, R, S, T, V, W, Y; and

X_{11} [[=>] is any one of A, D, E, F, G, I, K, L, N, P, Q, R, S, T, V, W, Y.

9. (Previously Presented) The mutant according to claims 1 or 3 comprising at least one mutation at X_1, X_2, X_3 or X_4.

10. (Currently Amended) A mutant human serum albumin comprising the amino acid sequence of SEQ ID NO:1, wherein X_2 is His or Asp, or X_1 is Ala ~~mutation Asn 99His, Asn99Asp or His67Ala~~.

11. (Withdrawn) A nucleic acid sequence capable of encoding a mutant serum albumin according to claims 1, 3 or 10.

12. (Withdrawn) An expression cassette comprising a promoter operably linked to a nucleic acid sequence according to claim 11.

13. (Currently Amended) A pharmaceutical composition comprising a mutant serum albumin~~, a nucleic acid sequence or an expression cassette~~ according to claims 1 or 3 and a pharmaceutically acceptable carrier therefore.

14. (Withdrawn) A cell culture medium comprising a mutant serum albumin, a nucleic acid sequence or an expression cassette according to claims 1, 3 or 10.

15. (Canceled)

16. (Withdrawn) A method of altering growth characteristics of cells in cell culture comprising the step of culturing cells in cell culture in the presence of a mutant serum albumin according to claims 1 or 3.

17. (Withdrawn) A method of obtaining a mutant serum albumin which displays an altered metal binding affinity or one or more physiological characteristics with respect to a native albumin from which the mutant has been derived, comprising the steps of:

a) providing a nucleic acid sequence encoding a nucleic albumin polypeptide;

b) conducting a mutagenisis reaction on said nucleic acid in order to alter said nucleic acid whereby said altered nucleic acid sequence encodes a mutant albumin polypeptide comprising at least one mutation with respect to said native albumin;

c) expressing said mutant albumin polypeptide and detecting whether or not said mutant albumin displays an altered metal binding or one or more physiological characteristics.

18. (Withdrawn) The method according to claim 17 wherein the mutant albumin comprises at least one mutation to residues X_1--X_{11} as shown in Table 1.

19. (Currently Amended) The mutant according to claim 1 wherein the mutant displays an altered metal binding affinity and ~~one or more~~ an altered physiological characteristic with respect to native human serum albumin.

20. (Previously presented) The mutant according to claim 1 wherein said one or more physiological characteristics are a change in cell adhesion to a substrate, percentage viability of cell, and cell growth of cells in culture.

21. (Withdrawn) A method of obtaining a mutant serum albumin which displays an altered metal binding affinity and one or more physiological characteristics with respect to a native albumin from which the mutant has been derived, comprising the steps of:

a) providing a nucleic acid sequence encoding a nucleic albumin polypeptide;

b) conducting a mutagenisis reaction on said nucleic acid in order to alter said nucleic acid whereby said altered nucleic acid sequence encodes a mutant albumin polypeptide comprising at least one mutation with respect to said native albumin;

c) expressing said mutant albumin polypeptide and detecting whether or not said mutant albumin displays an altered metal binding and said one or more physiological characteristics.